

Listing of the Claims:

Claims 1 – 9 (Cancelled).

10. (Currently Amended) A phased array for controlling a radiation pattern comprising:
a plurality of first tunable elements connected in series between adjacent power divider ports;
a source connected to one input of the plurality of first tunable elements at a first power divider port;
a respective antenna connected to each of the power divider ports; and
a respective second tunable element connected in parallel with each antenna, wherein each second tunable element is a capacitor, and each capacitor is one of a switching fixed capacitor and a switching transmission line.

Claims 11 – 32 (Cancelled).

33. (Cancelled)

34. (Currently Amended) ~~The phased array of claim 33 wherein~~
In a phased array for controlling a radiation pattern of an array of antennas, the single extended resonance circuit topology further comprises including:
a single extended resonance circuit topology for performing both functions of power dividing and phase shifting, the single extended resonance circuit topology including a plurality of antennas defining an array, a first tunable impedance connected in series between each respective pair of adjacent antennas, and a second tunable impedance connected in parallel with each respective antenna, wherein a phase of each respective antenna is controlled by applying a voltage to one of the first and second tunable impedances within the phased array.
an extended resonance dividing circuit coupled to each of an N plurality of ports, the extended resonance dividing circuit including the first tunable impedance connected between

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each of the N plurality of ports, the tunable impedance transforming the admittance of one port coupled to the tunable impedance to its the conjugate of the admittance at a second one of the N plurality of ports, a power source having an impedance matched to the impedance of an endmost port in the array, such that resonance of all of the ports with one another makes a voltage at each port a predetermined magnitude, and a second impedance coupled between each port and ground to vary the relative phase shift between each port.

35. (Currently Amended) The phased array of claim ~~33~~ 40 wherein the ~~first-tunable-series~~ impedance is a tunable inductor.

36. (Currently Amended) The phased array of claim ~~33~~ 40, wherein the ~~first-tunable-series~~ impedance is an impedance inverter including two quarter-wave transformers with a tunable capacitor connected in shunt therebetween.

37. (Currently Amended) The phased array of the claim ~~33~~ 40, wherein the ~~first-tunable-series~~ impedance is a tunable transmission line having a length, and the ~~second-tunable-shunt~~ impedance is a tunable capacitance.

38. (Previously Presented) The phased array of claim 37 further comprising:
a single biased voltage controlling the tunable capacitance connected to each of the plurality of ports.

39. (Currently Amended) The phased array of claim ~~33~~ 40, wherein the phase shift between successive ports ~~are a predetermined magnitude is equal~~.

40. (Currently Amended) A phased array for controlling a radiation pattern of an array of antennas comprising:

- an array of series connected antenna cells;
- a power source connected to the array; and

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~~each antenna cell including a power divider port, and an antenna connected to the power divider port, a port, and an extended resonance circuit coupled to each power divider port in each antenna cell across the array, the extended resonance circuit performing power division and phase shifting for the power divider port and the antenna in each antenna cell including a series impedance connected between each port and a shunt impedance connected to each port; each serial impedance having a magnitude to transform the admittance at each port to a conjugate admittance such that, when all of the ports are resonated, the power is equally divided at each port and a phase shift exists between each port.~~

41. (Currently Amended) ~~The phased array of claim 40, wherein the extended resonance circuit further comprises comprising:~~

~~the series impedance is a tunable inductance connected to the power divider each antenna cell port, and a the shunt impedance is a tunable capacitance connected to the power divider port; the tunable inductance and the tunable capacitance cooperating to perform power division and phase shifting for the antenna in each cell.~~

42.-51 (Cancelled)